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Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the interactive fault map.

Lisbon Valley fault zone (Class B) No. 2511

Last Review Date: 1999-10-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: **Black, B.D., and Hecker, S., compilers, 1999, Fault number 2511, Lisbon Valley fault zone, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2020 02:55 PM.**

Synopsis	Poorly understood suspected Quaternary fault bounding Lisbon Valley, formed from salt dissolution and collapse. Because of their possible non-seismogenic origin, we considered these features to be Class B structures.
Name comments	The fault zone continues into Colorado on trend with the Dolores fault zone [2289] and fault Q-39 of Widmann and others (1998 #3441). **Fault ID:** Refers to fault number 18-8 in Hecker (1993 #642).
County(s) and	SAN JUAN COUNTY, UTAH

State(s)	SAN JUAN COUNTY, UTAH
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:170,000 scale. *Comments:* Mapped or discussed by Williams (1964 #2789), and Woodward-Clyde Consultants (1982 #5025, 1996 #5027). Fault traces from 1:170,00-scale geologic mapping of Woodward-Clyde Consultants (1982 #5025). Cater (1970 #2672) mapped the fault in Colorado.
Geologic setting	Northwest-trending faults along the flanks of the Lisbon Valley anticline in the Paradox Basin of eastern Utah. Analysis of subsurface data suggests that surface faults do not extend below the Paradox Formation, but the evidence is not conclusive, and a tectonic origin for at least part of the displacement cannot be discounted. The Lisbon Valley fault zone and Moab fault [2476] are the longest and most prominent faults in the Paradox Basin.
Length (km)	37 km.
Average strike	N47°W
Sense of movement	Normal
Dip Direction	NE; SW
Paleoseismology studies	
Geomorphic expression	The fault zone can be divided into three distinct portions based on the complexity of surface expression. Lineaments are subparallel, but not coincident with mapped traces. Geomorphic expression (such as apparent offset drainages) suggests recent faulting, but more work is needed to identify the origin and age of features. The faults display a normal sense of displacement that is most probably related to evaporite dissolution and collapse along salt anticline crests. Evidence for post-Laramide growth of the Lisbon Valley anticline is inconclusive, but evidence exists for Quaternary growth on the colinear Dolores anticline in Colorado. Because of their possible non-seismogenic origin, we considered these features to be Class B structures. Woodward-Clyde Consultants (1996 #5027) found no evidence for Quaternary

	movement on the fault, and thus did not consider it a capable fault for seismic-hazard assessment purposes.
Age of faulted surficial deposits	Cretaceous
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Based on the presence of lineaments and drainage disruption(?).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#2672 Cater, F.W., Jr., 1970, Geology of the salt anticline region in southwestern Colorado, with a section on stratigraphy by F.W. Cater and L.C. Craig: U.S. Geological Survey Professional Paper 637, 80 p. #642 Hecker, S., 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 157 p., 6 pls., scale 1:500,000. #3441 Widmann, B.L., Kirkham, R.M., and Rogers, W.P., 1998, Preliminary Quaternary fault and fold map and database of Colorado: Colorado Geological Survey Open-File Report 98-8, 331 p., 1 pl., scale 1:500,000. #2789 Williams, P.L., 1964, Geology, structure, and uranium deposits of the Moab quadrangle, Colorado and Utah: U.S. Geological Survey Miscellaneous Geologic Investigations I-360. #5025 Woodward-Clyde Consultants, 1982, Geologic characterization report for the Paradox Basin study region, Utah study areas, volume II, Gibson Dome: Technical report to Battelle

	Memorial Institute, Office of Nuclear Waste Isolation, under Contract ONWI-290, variously paginated, scale 1:340,000. #5027 Woodward-Clyde Federal Services, 1996, Evaluation and potential seismic and salt dissolution hazards at the Atlas Uranium Mill tailings site, Moab, Utah: Technical report to Smith Environmental Technologies and Atlas Corporation, under Contract SK9407, variously paginated.